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Biology Question Paper
CODE: O6**

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NEET 2021 Biology Question Paper CODE – O6

Biology

101. DNA strands on a gel stained with ethidium bromide when viewed under UV radiation, appear as :

- (1) Yellow bands
- (2) Dark red bands
- (3) Bright blue bands
- (4) Bright orange bands**

102. Which of the following plants is monoecious?

- (1) Carica papaya
- (2) Morchartia polymorpho
- (3) Cycas circinalis
- (4) Chara**

103. Match List - I with List - II.

	List - I		List - II
(a)	Lenticels	(i)	Phellogen
(b)	Cork cambium	(ii)	Suberin deposition
(c)	Secondary cortex	(iii)	Exchange of gases
(d)	Cork	(iv)	Phelloiderm

Choose the correct answer from the options given below.

Codes

- | | | | |
|------------|-------|-------|-------|
| (a) | (b) | (c) | (d) |
| (1) | (iv) | (i) | (iii) |
| (2) | (ii) | (iii) | (iv) |
| (3) | (iv) | (ii) | (i) |
| (4) | (iii) | (i) | (iv) |

104. Which of the following is an incorrect statement ?

- (1) Microbodies are present both in plant and animal cells.
- (2) The perinuclear space forms a barrier between the materials present inside the nucleus and that of the cytoplasm.
- (3) Mature sieve tube elements possess a conspicuous nucleus and usual cytoplasmic organelles.**

- (4) Nuclear pores act as passages for proteins and RNA molecules in both directions between nucleus and cytoplasm.

105. The term used for transfer of pollen grains from anthers of one plant to stigma of a different plant which, during pollination, brings genetically different types of pollen grains to stigma, is :

- (1) Geitonogamy
- (2) Chasmogamy
- (3) Xenogamy**
- (4) Cleistogamy

106. The first stable product of CO₂ fixation in sorghum is :

- (1) Pyruvic acid
- (2) Succinic acid
- (3) Phosphoglyceric acid
- (4) Oxaloacetic acid**

107. Which of the following statements is not correct ?

- (1) Pyramid of biomass in sea is generally inverted.
- (2) Pyramid of energy is always upright.
- (3) Pyramid of numbers in a grassland ecosystem is upright.
- (4) Pyramid of biomass in sea is generally upright.**

108. Which of the following algae produce Carrageen ?

- (1) Red algae**
- (2) Green algae
- (3) Brown algae
- (4) Blue-men algae

109. When gene targetting involving gene amplification is attempted in an individual's tissue to treat disease, it is known as

- (1) Safety testing
- (2) Biopiracy
- (3) Molecular diagnosis
- (4) Gene therapy**

110. Plants follow different pathways in response to environment or phases of life to form different kinds of structures.

This ability is called :

- (1) Plasticity (2) Elasticity.
- (3) Flexibility (4) Maturity

111. Inspite of interspecific competition in nature, which mechanism the competing species might have evolved for their survival?

- (1) Mutualism
- (2) Competitive release
- (3) Resource partitioning
- (4) Predation

112. Match List - I with List - II.

	List – I		List – II
(a)	cristae	(i)	Primary in chromosome
(b)	Thylakoids	(ii)	Disc-shaped sacs in Golgi apparatus
(c)	Centromere	(iii)	Infoldings in mitochondria
(d)	Cisternae	(iv)	Flattened membranous sacs in stroma of plastids

Choose the correct answer from the options given below.

- (a) (b) (c) (d)
- (1) (iii) (iv) (i) (ii)
- (2) (iv) (iii) (ii) (i)
- (3) (i) (iv) (iii) (ii)
- (4) (ii) (iii) (iv) (i)

113. The plant hormone used to destroy weeds in a field is :

- (1) 2, 4-D (2) IAA
- (3) NAA (4) IBA

114. The factor that lends to Founder effect population is :

- (1) Natural selection
- (2) Genetic drift
- (3) Genetic recombinnt ion
- (4) Mutation

115. Match List - I with List.- II.

	List – I		List – II
(a)	Cells with active cell division capacity	(i)	Vascular tissues
(b)	Tissue having all cells similar in structure and function	(ii)	meristematic tissue
(c)	Tissue having different types of cells	(iii)	Sclereids
(d)	Dead cells with highly thickened walls and narrow lumen	(iv)	Simple tissue

Select the correct answer from the options given below.

Codes

- | | | | |
|-----|-------|-------|-------|
| (a) | (b) | (c) | (d) |
| (1) | (iv) | (iii) | (ii) |
| (2) | (i) | (ii) | (iii) |
| (3) | (ii) | (iv) | (i) |
| (4) | (iii) | (ii) | (iv) |

116. The amount of nutrients, such as carbon, nitrogen, phosphorus and calcium present in the soil at any given time, is referred ns

- (1) Standing state (2) Climax
- (3) Climax community
- (4) Standing crop

117. Genera like Selaginella and Salvinia produce two kinds of spores. Such plants are known as :

- (1) Homosorus (2) Heterosporous
- (3) Heterosorus (4) Homosporous

118. Which of the following stages of meiosis involves division of centromere ?

- (1) Anaphase II (2) Metaphase I
- (3) Metaphase II (4) Telophase II

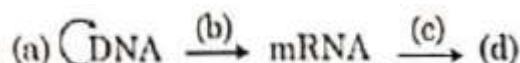
119. Gemmae are present in :

- (1) Mosses
- (2) Some Liverworts
- (3) Pteridophytes
- (4) Some Gymnosperms

120. Which of the following is a correct sequence of steps in a PCR (Polymerise Chain Reaction)?

- (1) Denaturation, Extension, Annealing
- (2) Extension, Denaturation, Annealing
- (3) Denaturation, Annealing, Extension
- (4) Annealing, Denaturation, Extension

121. Complete the flow chart on central dogma.



- (1) (a)-Replication; (b)-Transcription;
(c)-Translation; (d)-Protein
- (2) (a)-Replication; (b)-Transcription;
(c)-Transcription; (d)-Protein
- (3) (a)-Translation; (b)-Replication;
(c)-Transcription; (d)-Transduction
- (4) (a)-Transduction; (b)-Translation;
(c)-Replication; (d)-Protein

122. Diadelphous stanens are found in

- (1) Pea
- (2) China rose
- (3) Citrus
- (4) China rose and citrus

123. Amensalism can be represented as Species

- (1) Species A (+) Species B (+)
- (2) Species A (-) : Species B (-)
- (3) A (-) : Species B (0)
- (4) Species A (+) ; Species B (0)

124. Match List -I with List - II.

	List - I		List - II
(a)	Cohesion	(i)	More attraction in liquid phase
(b)	Adhesion	(ii)	Mutual attraction among water molecules
(c)	Surface tension	(iii)	Water loss in liquid phase
(d)	Guttation	(iv)	Attraction towards polar surfaces

Choose the correct answer from the options given below.

Codes

- | | | | |
|-----|-------|-------|------|
| (a) | (b) | (c) | (d) |
| (1) | (iv) | (iii) | (ii) |
| (2) | (iii) | (i) | (iv) |
| (3) | (ii) | (iv) | (i) |
| (4) | (ii) | (i) | (iv) |

Ans: (3) (a)-ii ; (b) -iv; (c)-i; (d)- iii

125. In the equation GPP – R = NPP

R represents :

- (1) Radiant energy
- (2) Respiration losses
- (3) Retardation factor
- (4) Environment factor

126. The site of perception of light in plants photoperiodism is :

- (1) Shoot apex
 - (2) Leaf
 - (3) Stem
 - (4) Axillary bud

127. Which of the following is not an application of PCR (Polymerase Chain Reaction)?

- (1) Purification of isolated protein
 - (2) Molecular diagnosis
 - (3) Gene amplification
 - (4) Detection of gene mutation

128. During the purification process for recombinant DNA technology, addition of chilled ethanol precipitates out : .

- (1) RNA (2) Histones
(3) Polysaccharides (4) DNA

129. Which of the following algae contains mannitol as reserve food material?

- (1) Gracilaria
(2) Volvox
(3) Ectocarpus
(4) Ulothrix

130. Mutations in plant cells can be induced by :

- (1) Gamma rays
 - (2) Kinetin
 - (3) Infrared rays
 - (4) Zeatin

131. A typical angiosperm embryo sac at maturity is :

- (1) 7-nucleate and 8-celled
(2) 7-nucleate and 7-celled
(3) 8-nucleate and 7-celled
(4) 8-nucleate and 8-celled

132. Which of the following are not secondary metabolites in plants?

- (1) Morphine, codeine
 - (2) Vinblastin, curcumin
 - (3) Rubber, gums
 - (4)** Amino acids, glucose

133. The production of gametes by the parents, formation of zygotes, the F₁ and F₂ plants. can be understood from to diagram called :

- (1) Punnett square
 - (2) Bullet square
 - (3) Punch square
 - (4) Net square

134. When the centromere is situated in the middle of two equal arms of chromosomes. the chromosome is referred

- (1) Telocentric
 - (2) Sub-metacentric
 - (3)** Metacentric
 - (4) Acrocentric

135. Match List - I with List - II

	List – I		List – II
(a)	Protoplast fusion	(i)	Totipotency
(b)	Plant tissue culture	(ii)	Pomato
(c)	Meristem culture	(iii)	Somaclones
(d)	Micropropagation	(iv)	Virus free plants

Choose the correct answer from the options given below

Codes

- | | | | | |
|------------|-------|-------|------|-------|
| | (a) | (b) | (c) | (d) |
| (1) | (iii) | (iv) | (ii) | (i) |
| (2) | (iii) | (iv) | (i) | (ii) |
| (3) | (iv) | (iii) | (ii) | (i) |
| (4) | (ii) | (i) | (iv) | (iii) |

Section - B (Biology : Botany)

136. Plasmid pBR322 has PstI restriction enzyme site within gene amp^R that confers ampicillin resistance. If this enzyme is used for inserting a gene for β-galactoside production and the recombinant plasmid is inserted in an E.coli strain

- (1) the transformed cells will have the ability to resist ampicillin as well as produce β-galactoside.
- (2) it will lead to lysis of host cell.
- (3)** it will not be able to confer ampicillin resistance to the host cell.
- (4) it will be able to produce a novel protein with dual ability.

137. What is the role of RNA polymerase III in the process of transcription in eukaryotes ?

- (1) Transcribes rRNAs (28S, 18S and 5.8S)
- (2) Transcribes precursor of mRNA
- (3) Transcribes only snRNAs
- (4)** Transcribes tRNA, 5s rRNA and snRNA

138. In the exponential growth equation N_t= N₀e^{rt}, e represents :

- (1)** The base of natural logarithms
- (2) The base of number logarithms
- (3) The base of exponential logarithms
- (4) The base of geometric logarithms

139. Match Column - I with Column - II.

	Column – I		Column – II
(a)	%♀K ₍₅₎ C ₁₊₂₊₍₂₎ A ₍₉₎₊₁ G ₁	(i)	Brassicaceae
(b)	*♀K ₍₅₎ C ₍₅₎ A ₅ G ₂	(ii)	Liliaceae

(c)	*♀P ₍₃₊₃₎ A ₃₊₃ G ₍₃₎	(iii)	Fabaceae
(d)	*♀K ₂₊₂ C ₄ A ₂₋₄ G ₍₂₎	(iv)	Solanaceae

Select the correct answer from the options given below

- | | | | | |
|------------|-------|-------|-------|-------|
| (a) | (b) | (c) | (d) | |
| (1) | (i) | (ii) | (iii) | (iv) |
| (2) | (ii) | (iii) | (iv) | (i) |
| (3) | (iii) | (iv) | (ii) | (i) |
| (4) | (iv) | (ii) | (i) | (iii) |

140. Which of the following statements is incorrect ?

- (1) Both ATP and NADPH + H⁺ are synthesized during non-cyclic photophosphorylation.
- (2)** Cyclic photophosphorylation involves both PS I and PS II.
- (3) Stroma lamellae have PS I only and lack NADP reductase.
- (4) Grana lamellae have both PS I and PS II.

141. Match Column - I with Column II

	Column – I		Column – II
(a)	Nitrococcus	(i)	Denitrification
(b)	Rhizobium	(ii)	Conversion of ammonia to nitrite
(c)	Thiobacillus	(iii)	Conversion of nitrite to nitrate
(d)	Nitrobacter	(iv)	Conversion of atmospheric nitrogen to ammonia

Choose the correct answer from options given below.

Code:

- | | | | |
|-----------------|-------|-------|-------|
| (a) | (b) | (c) | (d) |
| (1) (i) | (ii) | (iii) | (iv) |
| (2) (iii) | (i) | (iv) | (ii) |
| (3) (ii) | (iv) | (i) | (iii) |
| (4) (iv) | (iii) | (ii) | (i) |

142. Match List - I with List - II

	Column – I		Column – II
(a)	Protein	(i)	C = C double bonds
(b)	Unsaturated fatty acid	(ii)	pbosphotheoster bonds
(c)	Nucleic acid	(iii)	Glycosidic bonds
(d)	Polysaccharide	(iv)	Peptide bonds

Choose the correct answer from the options given below.

- | | | | |
|-----------------|-------|-------|-------|
| (a) | (b) | (c) | (d) |
| (1) (i) | (iv) | (iii) | (ii) |
| (2) (ii) | (i) | (iv) | (iii) |
| (3) (iv) | (i) | (ii) | (iii) |
| (4) (iv) | (iii) | (i) | (ii) |

143. Which of the following statements is correct ?

- (1) Fusion of two cells is called Karyogamy.
- (2) Organisms that depend on living plants are called saprophytes.
- (3) Some of the organisms can fix atmospheric nitrogen in specialized cells called sheath cells.
- (4) Fusion of protoplasms between two motile or non-motile gametes is called plasmogamy.**

144. In some members of which of the following pairs of families, pollen grains retain their viability for months after release ?

- (1) Poaceae ; Rosaceae
- (2) Rosaceae; Leguminosae**
- (3) Poaceae Leguminosae
- (4) Poacerie ; Solanaceae

145. Select the correct pair.

- (1)** Cells of medullary rays that form part of cambial ring - Interfascicular cambium
- (2) Large colorless empty cells in the epidermis of gr. leaves - Subsidiary cell
- (3) In dicot leaves, vascular bundles are surrounded by large thick-walled cells - Conjunctive tissue
- (4) Loose parenchyma cells rupturing the epidermis and forming a lens-shaped opening in bark - Spongy parenchyma

146. Which of the following statements is incorrect ?

- (1) During aerobic respiration, role of oxygen is limited to the terminal stage.
- (2) ATP is synthesized through complex V.
- (3) Oxidation-reduction reactions produce proton gradient in respiration.
- (4) In ETC (Electron Transport Chain), one molecule of NADH +H⁺ gives rise to 2 ATP molecules, and one FADH₂ gives rise to 3 ATP molecules**

147. Match List - I with List - II.

	List – I		List – II
(a)	S phase	(i)	Proteins are synthesized
(b)	G ₂ phase	(ii)	Inactive phase
(c)	Quiescent stage	(iii)	Interval between mitosis and initiation of DNA replication
(d)	G ₁ Phase	(iv)	DNA replication

Choose the correct answer from the options given below.

Code:

- | | | | |
|-----------------|------|-------|-------|
| (a) | (b) | (c) | (d) |
| (1) (iv) | (i) | (ii) | (iii) |
| (2) (iii) | (ii) | (i) | (iv) |
| (3) (iv) | (ii) | (iii) | (i) |
| (4) (ii) | (iv) | (iii) | (i) |

148. Identify the correct statement.

- (1) In capping, methyl guanosine triphosphate is added to the 3' end of hnRNA.
- (2) The coding strand in a transcription unit is copied to an mRNA.
- (3) Split gene arrangement is characteristic of prokaryotes.
- (4) RNA polymerase binds with Rho factor to terminate the process of transcription in bacteria.**

149. Now a days it is possible to detect the mutated gene causing cancer by allowing radioactive probe to hybridise its complimentary DNA in a clone of cells, followed by its detection using autoradiography because :

- (1)** mutated gene does not appear on a photographic film as the probe has no complimentarity with it
- (2) mutated gene partially appears on a photographic film.
- (3) mutated gene completely and clearly appear on a photographic film
- (4) mutated gene does not appear on photographic film as the probe has complimentarity with it.

150. DNA fingerprinting involves identifying differences in some specific regions in DNA sequence, called as

- (1) Satellite DNA
- (2) Single nucleotides
- (3) Polymorphic DNA
- (4) Repetitive DNA**

151. Erythropoietin hormone which stimulates R.B.C. formation is produced by :

- (1) Juxtaglomerular cells of the kidney**
- (2) Alpha cells of pancreas
- (3) The cells of rostral adenohypophysis
- (4) The cells of bone marrow

152. Which one of the following belongs to the family Muscidae ?

- (1) Fire fly
- (2) House fly**
- (3) Grasshopper
- (4) Cockroach

153. Match the following :

	List – I		List – II
a.	Physalia	i.	Pearl oyster
b.	Linulus	ii.	Portuguese Man of War
c.	Ancylostoma	iii.	Living fossil
d.	Pinctada	iv.	Hookworm

Choose the correct answer from the options given below.

- (a) (b) (c) (d)
- (1) (ii) (iii) (iv) (i)**
- (2) (ii) (iii) (i) (iv)
- (3) (iv) (i) (iii) (ii)
- (4) (i) (iv) (iii) (iii)

154. For effective treatment of the disease, early diagnosis and understanding its pathophysiology is very important. Which of the following molecular diagnostic techniques is very useful for early detection ?

- (1) ELISA Technique**
- (2) Western Blotting Technique
- (3) Southern Blotting Technique
- (4) Hybridization Technique

155. Which one of the following is an example of Hormone releasing IUD ?

- (1) CuT
- (2) Cu7
- (3) Multiload 375
- (4) LNG 20**

156. Which stage of meiotic prophase shows terminalisation of chiasmata as its distinctive features?

- (1) Diakinesis
- (2) Leptotene
- (3) Zygote
- (4) Pachytene

157. With regard to insulin choose correct options.

- (a) C-peptide is not present in mature insulin.
 - (b) The insulin produced by rDNA technology has C-peptide.
 - (c) The pro-insulin has C-peptide.
 - (d) A-peptide and B-peptide of insulin are interconnected by disulphide bridges. Choose the correct answer from the options given below.
- (1) (a), (c) and (d) only
 - (2) (b) and (d) only
 - (3) (b) and (c) only
 - (4) (a) and (d) only

158. Which one of the following organisms bears hollow and pneumatic long bones

- (1) Hemidactyl.
- (2) Macropus
- (3) Neophron
- (4) Ornithorhynchus

159. Persons with 'AB' blood group are called as "Universal recipients". This is due to :

- (1) Absence of antigens A and B on the surface of RBCs
- (2) Absence of antibodies anti-A and anti-B, in plasma
- (3) Absence of antigens A and B in plasma
- (4) Presence of antibodies anti-A and anti-B, on RBCs

160. Which enzyme is responsible for the conversion of inactive fibrinogens to fibrins?

- (1) Renin
- (2) Epinephrinie
- (3) Thrombin
- (4) Thrombokinase

161. Which of the following statements wrongly represents the nature of smooth muscle ?

- (1) Communication among the cells is performed by intercalated discs
- (2) These muscle have no striations
- (3) They are involuntary muscles
- (4) These muscles are present in the wall of blood vessels

162. Match List - I with List - II.

	List – I		List – II
a.	Metamerism	i.	Coelenterata
b.	Canal system	ii.	Ctenophora
c.	Comb plates	iii.	Annelida
d.	Cnidoblasts	iv.	Porifera

- (a) (b) (c) (d)
- (1) (iii) (iv) (ii) (i)
- (2) (iv) (iii) (i) (ii)
- (3) (iii) (iv) (i) (ii)
- (4) (iv) (i) (ii) (iii)

163. A specific recognition sequence identified by endonucleases to make cuts at specific positions within the DNA is :

- (1) Palindromic Nucleotide sequences
- (2) Degenerate primer sequence
- (3) Okazaki sequences
- (4) Poly(A) tail sequences

164. Which is the "Only enzyme" that has "Capability" to catalyse Initiation, Elongation and Termination in the process of transcription in prokaryotes?

- (1) DNA dependent DNA polymerase
- (1) DNA Ligase
- (3) DNase
- (4) DNA dependent RNA polymerase**

165. Identify the incorrect pair.

- | | | |
|------------------|---|----------------|
| (1) Alkaloids | - | Coderinie |
| (2) Drugs | - | Ricin |
| (3) Toxin | - | Abrin |
| (4) Lectins | - | Concanavalin A |

166. The partial pressures (in mm Hg) of oxygen (O_2) and carbon dioxide (CO_2) at alveoli (the site of diffusion) are :

- (1) $pO_2 = 40$ and $pCO_2 = 45$
- (2) $pO_2 = 95$ and $pCO_2 = 40$
- (3) $pO_2 = 104$ and $pCO_2 = 40$**
- (4) $pO_2 = 159$ and $pCO_2 = 0.3$

167. The organelles that are included in the endomembrane system are

- (1) Endoplasmic reticulum, Mitochondria, Ribosomes and Lysosomes
- (2) Golgi complex, Mitochondria, Ribosomes and Lysosomes
- (3) Golgi complex, Endoplasmic reticulum, Mitochondria and Lysosomes
- (4) Endoplasmic reticulum, Golgi complex, Lysosomes and Vacuoles**

168. If Ademine makes 30% of DNA molecule, what will be the percentage of Thymine, Guanine and Cytosine in it?

- (1) T : 30 ; G : 20 ; C : 20**
- (2) T : 20 ; G : 30 ; C : 20
- (3) T : 20 ; G : 20 ; C : 30
- (4) T : 20 ; G : 25 ; C : 25

169. Dobson units are used to measure thickness of :

- (1) Ozone**
- (2) CFCs
- (3) Stratosphere
- (4) Troposphere

170. Read the following statement

- (a) Metagenesis is observed in Helminths.
 - (b) Echinoderms are triploblastic and coelomate animals.
 - (c) Round worms have organ-system level of body organization.
 - (d) Comb plates present in ctenophores help in digestion.
 - (e) Water vascular system is characteristic of Echinoderms.
- Choose the correct answer from the options given below.
- (1) (c), (d) and (e) are correct
 - (2) (b), (c) and (e) are correct**
 - (3) (a), (b) and (c) are correct
 - (4) (a), (d) and (e) are correct

171. Chronic auto immune disorder affecting neuro muscular junction leading to fatigue, weakening and paralysis of skeletal muscle is called as :

- (1) Myasthenia gravis**
- (2) Arthritis
- (3) Muscular dystrophy
- (4) Gout

172. Match List - I with List - II

	List - I		List - II
a.	Vaults	i.	Entry of sperm through Cervix is blocked
b.	IUDs	ii.	Removal of Vas deferens
c.	Vesectomy	iii.	Phagocytosis of sperms
d.	Tubectomy	iv.	Removal of fallopian tube

Choose the correct answer from the options given below.

- | | | | |
|----------------|-------|-------|-------|
| (a) | (b) | (c) | (d) |
| (1) (iv) | (ii) | (i) | (iii) |
| (2) (iii) | (iv) | (iii) | (i) |
| (3) (iii) | (i) | (iv) | (ii) |
| (4) (i) | (iii) | (ii) | (iv) |

173. The centriole undergoes duplication during:

- | | |
|--------------------|--------------------------|
| (1) Prophase | (2) Metaphase |
| (3) S-phase | (4) G ₂ phase |

174. Receptors for sperm binding in mammals are present on

- | |
|---------------------------|
| (1) Corona radiata |
| (2) Zona pellucida |
| (3) Vitelline membrane |
| (4) Perivitelline space |

175. Which of the following characteristic is incorrect with respect to cockroach?

- | |
|--|
| (1) Hypopharynx lies within the cavity enclosed by the mouth parts. |
| (2) In females, 7 th – 9 th sternum together form a genital pouch. |
| (3) A ring of gastric caeca is present at the junction of midgut and hind gut. |
| (4) 10 th abdominal segment in both sexes, bears a pair of anal cerci. |

176. Match List - I with List - II.

	List - I		List - II
a.	Aspergillus niger	i.	Acetic Acid
b.	Acetobacter aceti	ii.	Lactic Acid
c.	Clostridium Butylicum	iii.	Citric Acid
d.	Lactobacillus	iv.	Butyric Acid

Choose the correct answer from the options given below.

- | | | | |
|------------------|-------|-------|-------|
| (a) | (b) | (c) | (d) |
| (1) (i) | (ii) | (iii) | (iv) |
| (2) (ii) | (iii) | (i) | (iv) |
| (3) (iii) | (i) | (iv) | (ii) |
| (4) (iv) | (ii) | (i) | (iii) |

177. Venereal diseases can spread through :

- (a) Using sterile needles
- (b) Transfusion of blood from infected person
- (c) Infected mother to foetus
- (d) Kissing
- (e) Inheritance**

Choose the correct answer from the options given below.

- (1) (b) and (c) only**
- (2) (a), (b) and (c) only
- (3) (b), (c) and (d) only
- (4) only (a) and (c) only

178. Which of the following RNAs is not required for the synthesis of protein?

- | | |
|----------|------------------|
| (1) mRNA | (2) siRNA |
| (3) rRNA | (4) tRNA |

179. Select the favourable conditions required for the formation of oxyhaemoglobin at the alveoli.

- (1) Low pO₂, high pCO₂, more H⁺, higher temperature
- (2) High pO₂, high pCO₂, less H⁺, higher temperature
- (3) High pO₂, low pCO₂, less H⁺, lower temperature**
- (4) Low pO₂, low pCO₂, more H⁺, higher temperature

180. *Succus entericus* is referred to as :

- (1) Pancreatic juice
- (2) Gastric juice
- (3) Chyme
- (4) Intestinal Juice**

181. In a cross between a male and female, both heterozygous for sickle cell anaemia gene, what percentage of the progeny will be diseased?

- (1) 25% (2) 50%
(3) 75% (4) 100%

182. During the process of gene amplification using PCR, if very high temperature is not maintained in the beginning then which of the following steps of PCR will be affected first?

- (1) Denaturation (2) Annealing
(3) Extension (4) Ligation

183. Which of the following is not an objective of Biofortification in crops?

- (1) Improve protein content
(2) Improve vitamin content
(3) Improve micronutrient and mineral content
(4) Improve resistance to diseases

184. Sphincter of oddi is present at :

- (1) Ileal-caecal junction
(2) Gastro-oesophageal junction
(3) Junction of jejunum and duodenum
(4) Junction of hepato-pancreatic duct and duodenum

185. The fruit fly has 8 chromosomes ($2n$) in each cell. During interphase of Mitosis if the number of chromosomes at G_1 phase is 8, what should be the number of chromosomes after S phase?

- (1) 16 (2) 4
(3) 8 (4) 32

Section - B (Biology : Zoology)

186. Identify the types of cell junctions that help to stop the leakage of the

substances across a tissue and facilitation of communication with neighbouring cells via rapid transfer of ions and molecules.

- (1) Gap junctions and Adhering junctions, respectively.
(2) Adhering junctions and Tight junctions, respectively.
(3) Adhering junctions and Gap junctions, respectively.
(4) Tight junctions and Gap junctions, respectively.

187. Statement I : The codon 'AUG' codes for methionine and phenylalanine.

Statement II : 'AAA' and 'AAG' both codons code for the amino acid lysine. In the light of the above statement choose the correct answer from the options given below.

- (1) Both Statement I and Statement II are true
(2) Statement I is incorrect but statement II is true.
(3) Both Statement I and Statement II are false Statement I is correct but Statement II is false Statement I is incorrect but Statement II is true
(4) Statement I is correct but Statement II is false

188. Which of the following is not a step in Multiple Ovulation Embryo Transfer Technology (MOET)?

- (1) Cow yields about 6-8 eggs at a time
(2) Cow is fertilized by artificial insemination
(3) Cow is administered hormone having LH like activity for super ovulation.
(4) Fertilized eggs are transferred to surrogate mothers at 8-32 cell stage

189. Following are the statements about prostomium of earthworm.

- (a) It serves as a covering for mouth.
- (b) It helps to open cracks in the soil into which it can crawl.
- (c) It is one of the sensory structures.
- (d) It is the first body segment.

Choose the correct answer from the options given below.

- (1) (a), (b) and (d) are correct
- (2) (a), (b), (c) and (d) are correct
- (3) (a), (b) and (c) are correct
- (4) (b) and (c) are correct

190. Match List - I with List - II.

	List - I		List - II
a.	Allen's Rule	i.	Kangaroo rat
b.	Physiological adaption	ii.	Desert lizard
c.	Behavioural adaptation	iii.	Marine fish at depth
d.	Biochemical adaptation	iv.	Polar seal

Choose the correct answer from the options given below.

- (a) (b) (c) (d)
- (1) (iv) (i) (ii) (iii)
- (2) (iv) (ii) (iii) (i)
- (3) (iv) (i) (iii) (ii)
- (4) (iv) (iii) (ii) (i)

191. Match List - I with List - II.

	List - I		List - II
a.	Filariasis	i.	Haemophilus influenza
b.	Amoebiasis	ii.	Trichophyton
c.	Pneumonia	iii.	Wuchereria bancrofti
d.	Ringworm	iv.	Entamoeba histolytica

Choose the correct answer from the options given below.

- (a) (b) (c) (d)
- (1) (iv) (i) (iii) (ii)
- (2) (i) (iii) (iv) (iii)
- (3) (ii) (iii) (i) (iv)
- (4) (iii) (iv) (i) (ii)

192. Match List - I with List - II.

	List - I		List - II
a.	Adaptive radiation	i.	Selection of resistant varieties due to excessive use of herbicides and pesticides
b.	Convergent evolution	ii.	Bones of forelimbs in Man and Whale
c.	Divergent evolution	iii.	Wings of Butterfly and Bird
d.	Evolution by anthropogenic action	iv.	Darwin Finches

Choose the correct answer from the options given below.

- (a) (b) (c) (d)
- (1) (iii) (ii) (i) (iv)
- (2) (ii) (i) (iv) (iii)
- (3) (iv) (iii) (ii) (i)
- (4) (i) (iv) (iii) (ii)

193. Which of the following secretes the hormone, relaxin, during the later phase of pregnancy ?

- (1) Graafian follicle
- (2) Foetus
- (3) Uterus
- (4) Corpus luteum

194. Which one of the following statements about Histones is wrong ?

- (1) Histones are organized to form a coil of 8 molecules.
- (2) Histones are rich in amino acids - Lysine and Arginine.
- (3) Histones carry positive charge in the side chain.
- (4)** The pH of histones is slightly acidic.

195. Following are the statements with reference to 'lipids'.

- (a) Lipids having only single bonds are called unsaturated fatty acids.
- (b) Lecithin is a phospholipid.
- (c) Trihydroxy propane is glycerol.
- (d) Palmitic acid has 20 carbon atoms including carboxyl carbon.
- (e) Arachidonic acid has 16 carbon atoms.

Choose the correct answer from the options given below.

- (1)** (b) and (c) only
- (2) (a) and (b) only
- (3) (c) and (d) only
- (4) (b) and (e) only

196. Match List - I with List - II.

	List - I		List - II
a.	Scapula	i.	Cartilaginous joints
b.	Cranium	ii.	Flat bone
c.	Sternum	iii.	Fibrous joints
d.	Vertebral column	iv.	Triangular flat bone

Choose the correct answer from the options given below.

- (a) (b) (c) (d)
- (1) (i) (iii) (ii) (iv)
- (2)** (iv) (iii) (ii) (i)
- (3) (ii) (iii) (iv) (i)
- (4) (iv) (ii) (iii) (i)

197. The Adenosine deaminase deficiency results into

- (1) Parkinson's disease
- (2) Digestive disorder
- (3)** Dysfunction of Immune system
- (4) Addison's disease

198. During muscular contraction which of the following events occur ?

- (a) 'H' zone disappears
- (b) 'A' band widens
- (c) 'I' band reduces in width
- (d) Myosine hydrolyzes ATP, releasing the ADP and Pi
- (e) Z-lines attached to actins are pulled inwards

Choose the correct answer from the options given

- (1) (a), (b), (c), (d) only
- (2) (b), (c), (d), (e) only
- (3)** (a), (c), (d), (e) only
- (4) (1), (d), (e), (a) only

199. Which of these is not an important component of initiation of parturition in humans ?

- (1) Increase in estrogen and progesterone ratio
- (2)** Release of Prolactin
- (3) Synthesis of prostaglandins
- (4) Release of Oxytocin

200. Assertion (A) :

A person goes to high altitude and experiences 'altitude sickness' with symptoms like breathing difficulty and heart palpitations.

Reason (R) : Due to low atmospheric pressure at high altitude, the body does not get sufficient oxygen. In the light of the above statements, choose the correct answer from the options given below.

- (1) Both (A) and (R) are true but (R) is not the correct explanation of (A)
- (2) (A) is true but (R) is false
- (3)** Both (A) and (R) are true and (R) is the correct explanation of (A)
- (4) (A) is false but (R) is true